APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,074	02/02/2004	Jennifer Hay	M93.12-0296	9839

27367 7590 02/06/2006	EXAMINER
WESTMAN CHAMPLIN & KELLY, P.A.	LE, TOAN M

ART UNIT	PAPER NUMBER
2863	

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DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
Office Action Summary		10/770,074	HAY, JENNIFER
		Examiner	**Art Unit**	
		Toan M. Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _28 November 2005_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-38 and 40-49_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-9, 17, 18, 20-23, 25-27, 36, 37, 40, 41 and 47-49_ is/are rejected.

7)☒ Claim(s) _10-16, 19, 24, 28-35, 38 and 42-46_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _02 February 2004_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s) ·

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9, 17-18, 20-23, 25-27, 36-37, 40-41, and 47-49 are rejected under 35

U.S.C. 102(e) as being anticipated by Welch et al. (US Patent No. 6,460,012).

Referring to claims 1 and 48, Welch et al. disclose a testing system and a computer

readable medium including instructions readable by a computer, which when implemented,

cause the computer to detect a significant event in measurement data comprising the steps of:

receiving measurements as a function of at least one variable;

generating values from the received measurements, the values indicative of multiples of a

standard deviation (col. 14, lines 17-45; equation 11);

selecting a lower bound of the values based on a first selected multiple of the standard

deviation (col. 14, lines 46-55; equations 12-13),

selecting an upper bound of the values based on a second selected multiple of the

standard deviation (col. 14, lines 46-55); and

calculating the significant event based on the lower bound and the upper bound (col. 14,

lines 56-67 to col. 15, lines 1-13).

As to claim 2, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in measurement data, wherein the significant event is a point of engagement, wherein at the lower bound, an indication of the point of engagement has not occurred, and wherein at the upper bound the indication of the point of engagement has occurred (col. 18, lines 17-45).

Referring to claim 3, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in measurement data, wherein the point of engagement is of an indenter in an indenter test system (col. 17 to col. 21, Examples I-V).

As to claim 4, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in measurement data, wherein the point of engagement is of a tensile test system (col. 17 to col. 21, Examples I-V).

Referring to claim 5, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in measurement data, and further comprising processing the received measurements to generate the values (col. 16, lines 48-67).

As to claim 6, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in measurement data comprising the steps of:

generating values associated with received measurements, the values indicative of multiples of a standard deviations (col. 14, lines 17-45); and

calculating the significant event as a function of the values, wherein the received

measurements are received as a function of at least one variable (col. 14, lines 46-67 to col. 15,

lines 1-13); and

processing the received measurements to generate the values, wherein processing the

received measurements to generate the values comprises differentiating the received

measurements with respect to at least one of the variables to generate a derivative signal

scattering about zero as a function of one of the variables (col. 13, lines 35-45 and lines 65-67;

col. 14, lines 1-16; col. 15, lines 50-59; col. 17, lines 39-56).

Referring to claim 7, Welch et al. disclose a computer readable medium including

instructions readable by a computer, which when implemented, cause the computer to detect a

significant event in measurement data comprising the steps of:

generating values associated with received measurements, the values indicative of

multiples of a standard deviations (col. 14, lines 17-45); and

calculating the significant event as a function of the values, wherein the received

measurements are received as a function of at least one variable (col. 14, lines 46-67 to col. 15,

lines 1-13); and

processing the received measurements to generate the values, wherein processing the

received measurements to generate the values comprises using a compensation function to zero

the received measurements (col. 13, lines 65-67 to col. 14, lines 1-24; col. 15, lines 50-59;

equations 7-9).

As to claim 8, Welch et al. disclose a computer readable medium including instructions

readable by a computer, which when implemented, cause the computer to detect a significant

event in measurement data, wherein processing the received measurements to generate the values

comprises integrating the derivative signal over a selected increment to generate an integral

signal (col. 16, lines 11-30).

Referring to claim 9, Welch et al. disclose a computer readable medium including

instructions readable by a computer, which when implemented, cause the computer to detect a

significant event in measurement data, wherein processing the received measurements to

generate the values comprises calculating the standard deviation from at least part of the integral

signal (col. 20, lines 47-58).

As to claims 17 and 49, Welch et al. disclose a computer readable medium including

instructions readable by a computer, which when implemented, cause the computer to detect a

significant event in measurement data comprising the steps of:

generating values associated with received measurements, the values indicative of

multiples of a standard deviations (col. 14, lines 17-45); and

calculating the significant event as a function of the values, (col. 14, lines 46-67 to col.

15, lines 1-13; equations 12-13); and

processing the received measurements to generate the values, wherein the received

measurements are received as a function of at least one variable, and wherein processing the

received measurements to generate the values comprises integrating the received measurements

to generate an integral signal (col. 16, lines 11-30; equation 14).

Referring to claim 18, Welch et al. disclose a computer readable medium including

instructions readable by a computer, which when implemented, cause the computer to detect a

significant event in measurement data, and further comprising calculating the standard deviation

from at least a portion of the integral signal (col. 20, lines 47-58).

As to claim 20, Welch et al. disclose a computer readable medium including instructions

readable by a computer, which when implemented, cause the computer to detect an initial point

of engagement between an indenter or tensile tester and a test sample from data measurements

comprising the steps of:

receiving a data series indicative of test measurements as a function of a first variable;

generating at least one processed series from the data series (page 396, entire section 2.2);

identifying a first point on the at least one processed series; identifying a second point on

the at least one processed series;

calculating the initial point of engagement as a function of both the first point and the

second point (col. 16, lines 11-30).

Referring to claim 21, Welch et al. disclose a computer readable medium including

instructions readable by a computer, which when implemented, cause the computer to detect a

significant event in measurement data, and further comprising receiving the data series as a

function of at least one other variable (col. 16, lines 11-30).

As to claim 22, Welch et al. disclose a computer readable medium including instructions

readable by a computer, which when implemented, cause the computer to detect a significant

event in measurement data, wherein the test measurements indicate force (col. 12, lines 51-67;

equations 3-4).

Referring to claim 23, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in data measurements comprising the steps of:

receiving a data series indicative of test measurements as a function of a first variable;

generating at least one processed series from the data series (col. 14, lines 17-45);

identifying a first point on the at least one processed series;

identifying a second point on the at least one processed series;

calculating the significant event as a function of at least one of the first point and the second point (col. 16, lines 11-30);

receiving the data series as a function of at least one other variable, wherein the test measurements indicate force, and wherein the first variable comprises displacement and the at least one other variable comprises time (col. 12, lines 51-67; equations 3-4).

As to claim 25, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in data measurements comprising the steps of:

receiving a data series indicative of test measurements as a function of a first variable;

generating at least one processed series from the data series (col. 14, lines 17-45);

identifying a first point on the at least one processed series;

identifying a second point on the at least one processed series;

calculating the significant event as a function of at least one of the first point and the second point (col. 16, lines 11-30);

receiving the data series as a function of at least one other variable, wherein the test measurements indicate force, wherein generating at least one processed series comprises taking a first derivative of the received data series to generate a first processed series, and wherein generating at least one processed series comprises taking a second derivative of the received data series to generate a second processed series (col. 13, lines 65-67 to col. 14, lines 1-24).

Referring to claim 26, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in data measurements, wherein generating at least one processed series comprises integrating the second processed series over a selected period to generate a third processed series (col. 13, lines 65-67 to col. 14, lines 1-24; equation 9).

As to claim 27, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in data measurements, and further comprising calculating a standard deviation for at least a portion of the third processed series (col. 16, lines 11-30).

Referring to claim 36, Welch et al. disclose a computer readable medium including instructions readable by a computer, which when implemented, cause the computer to detect a significant event in data measurements comprising the steps of:

receiving a data series indicative of test measurements as a function of a first variable;

generating at least one processed series from the data series (col. 14, lines 17-45);

identifying a first point on the at least one processed series;

identifying a second point on the at least one processed series;

calculating the significant event as a function of at least one of the first point and the

second point (col. 16, lines 11-30);

receiving the data series as a function of at least one other variable, wherein generating at

least one processed series comprises integrating the received data series over a selected

increment to generate a first processed series (col. 16, lines 11-30; equation 14).

As to claim 37, Welch et al. disclose a computer readable medium including instructions

readable by a computer, which when implemented, cause the computer to detect a significant

event in data measurements, wherein generating at least one processed series further comprises

calculating a standard deviation for at least a portion of the first processed series (col. 20, lines

47-58).

Referring to claim 40, Welch et al. disclose a method of determining a significant event

in experimental data comprising the steps of:

generating a data signal indicative of measurements as a function of at least one variable

(col. 14, lines 17-45);

processing the data signal to generate a plurality of processed signals (col. 14, lines 46-

55);

determining a significant event based on the processed data signals, wherein the step of

processing the data signal to generate a plurality of processed signals comprises taking at least a

first derivative of the data signal to generate a processed derivative signal as a function of the at

least one variable, and wherein a portion of the processed derivative signal fluctuates about zero

as a function of the at least one variable (col. 13, lines 35-45 and lines 65-67; col. 14, lines 1-16;

col. 15, lines 50-59; col. 17, lines 39-56).

As to claim 41, Welch et al. disclose a method of determining a significant event in experimental data, wherein the step of processing the data signal to generate a plurality of processed signals comprises integrating the processed derivative signal to generate a processed integral signal as a function of the at least one variable, the processed integral function comprising integral values (col. 16, lines 11-30).

Referring to claim 47, Welch et al. disclose a method of determining a significant event in experimental data comprising the steps of:

generating a data signal indicative of measurements as a function of at least one variable (col. 14, lines 17-45);

processing the data signal to generate a plurality of processed signals (col. 14, lines 46-55);

determining a significant event based on the processed data signals, wherein the step of processing the data signal to generate a plurality of processed signals comprises integrating the data signal to generate a processed integral signal as a function of the at least one variable (col. 16, lines 11-30).

Allowable Subject Matter

Claims 10-16, 19, 24, 28-35, 38, and 42-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reason for allowance of the claims 10-16 and 19 is the inclusion of dividing the integral signal by the standard deviation to generate the values as in claim 10 including an upper bound with threshold correlating to a multiple of the standard deviation as in claims 11-12, 14

and 19 and a lower bound associated with pre-event measurement data as in claim 13 to identify

the significant event to where the integral is approximately 2 to 20/4 times the standard deviation

as in claims 15-16.

The reason for allowance of the claim 24 is the inclusion of calculating speed of the

indenter or tensile tester relative to the test sample.

The reason for allowance of the claims 28-35 is the inclusion of dividing the third

processed series by the standard deviation to generate a fourth processed series as in claim 28 to

identify a point on the fourth processed series threshold where a significant event is assumed to

have already occurred as in claims 29 and 33 and a second point on processed series including an

upper threshold as a function of the standard deviation as in claims 30-31 in the range of

approximately 10 to 20 as in claim 32 and a lower threshold which is less than 1 as in claims 34-

35.

The reason for allowance of the claim 38 is the inclusion of dividing the first processed

series by the standard deviation to generate a second processed series.

The reason for allowance of the claims 42-46 is the inclusion of dividing the integral

values by the standard deviation to generate a signal comprising multiples of the standard

deviation as in claim 42 to identify a significant event based on the multiples of the standard

deviation as in claim 43 and selecting an upper/lower bound for the significant event as in claim

44 and the uncertainty of the significant event as a function of the upper/lower bound as in claim

45 and based on a point bounded by the upper/lower bound as in claim 46.

Response to Arguments

Applicant's arguments with respect to claims 1-38 and 40-49 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

"Measurement of the Hardness of Hard Coatings Using a Force Indentation Function", Friedrich et al., Thin Solid Films 290-291, 1996, Pages 216-220

"Progress in Determination of the Area Function of Indenters Used for Nanoindentation", Herrmann et al., Thin Solid Films 377-378, 2000, Pages 394-400

"Quantitative Imaging of Nanoscale Mechanical Properties Using Hybrid Nanoindentation and Force Modulation", Syed Asif et al., Journal of Applied Physics, Vol. 90, No. 3, 1 August 2001, Pages 1192-1200

"Contact Modeling in the Vicinity of an Edge", Schwarzer et al., Surface and Coatings Technology 146-147, 2001, Pages 371-377

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M. Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Toan Le

January 31, 2006

BRYAN BUI
PRIMARY EXAMINER